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論　文　内　容　の　要　旨

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Interruption and Information Management for Computer-Mediated Communication
（コンピュータを利用したコミュニケーションのための割り込みと情報の管理）

The ubiquitous adoption of Instant Messenger (IM) in workplaces for work-related activities brings unintended and unavoidable interruptions which are a prominently occurring phenomenon in Computer-Mediated Communication (CMC). It drives users' attention away from their regular work. The objective of this study is to manage interruptions while using IM.

This study first proposes an idea of Self-Initiated Intermission to manage interrupting events such as upcoming notifications or chat messages with minimal negative impact. Taking an intentional break from an ongoing task is Self-Initiated Intermission. The impact of interruption is compared at three different conditions: at Self-Intermission (SI), at Application Switching (AS) and Regular Interval (RI). The comparative study shows that interruption or any other notification presented at the time of self-intermission is relatively less interruptive than other available alternatives.

Message delivery made only during intermission causes issue where both important and trivial messages are queued until the Self-Initiated Intermission happens. To solve this problem, this study further presents an approach for managing interruption and information for chat application conforming to the idea of interrupting users at the most appropriate time. This idea is implemented through the creation of a new Interruption-Information Management (IIM) chat framework. The IIM framework defers messages to deliver them at one of the four predefined message delivery conditions depending on the message priority, namely: Immediate (Imm) delivery, AS, RI and SI. The message priorities are assigned based on sender's contextual and behavioural information, whereas, the message delivery conditions are decided considering both the sender and the receiver's appropriate situations.

The prominent part of this research is that IIM framework uses embedded agents to work on behalves of the sender and the receiver to cooperate with each other for least interruptive message delivery. Both the sender agent and the receiver agent work together to deliver messages during the receiver's most favourable times exhibiting a cooperative behaviour. The agents intercept all incoming chat messages and deliver at a receiver's favourable time based on their evaluated priorities. All the remaining undelivered messages are re-evaluated and re-prioritized according to both sender's and receiver's latest situations. The receiver contributes in managing interruption whereas the sender assists to manage information, together forming an interruption-information management mechanism to decide the least interruptible time for message delivery. The finding of

this research suggests that the proposed framework minimizes interruption frequency and task fragments which lead to the overall productivity.

The IIM chat presented in this study enhances the productivity of the knowledge workers in organisations and is empirically proven to be better than the conventional chat. IIM chat is highly recommended to facilitate controlled message delivery with acceptable deferral based on urgency, i.e., delaying less urgent messages and minimizing interruptions. In addition, this study also discusses the details of how the chat application is considered in the organisations and how much impact it is creating in daily performance. Further, it elaborates on the importance of enhancing the current chat application and the necessity of considering both interruption and information management to make IM helpful for the knowledge workers.

This study is a new approach in the area of interruption management which not only considers interruption management but also manages information based on users' behaviour and preferences.